

REMARKS

Introduction

In response to the Office Action dated September 8, 2008, Applicants have amended claims 1 and 4. It is respectfully submitted that because no new matter or consideration are introduced by this amendment, this amendment should be entered. In view of the foregoing amendments and the following remarks, Applicants respectfully submit that all pending claims are in condition for allowance.

Claim Rejection Under 35 U.S.C. § 112

Claims 1, 4 and 5 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner asserts that the limitation “porous setter made of a high melting-point permeable ceramics” is not supported by the specification and boron nitride disclosed in the specification is not sufficient for the support. Applicants respectfully traverse.

Applicants respectfully submit that the materials used for high melting-point **permeable** ceramics have some degree of porosity. “Permeable” refers to something that is penetrable, *porous*, and spongy (*see*, Encarta Online Thesaurus © 2008 by Microsoft Corporation (copy attached) emphasis added). Further, “porous” is defined as *permeable*, for example, permits the movement of fluids or gases through it by way of pores or other passages (*see*, Encarta Online Dictionary © 2008 by Microsoft Corporation (copy attached) emphasis added). Thus, the limitation “porous setter” is supported by “permeable ceramics.” Accordingly, Applicants respectfully request that Examiner withdraw the rejection of claims 1, 4 and 5 under 35 U.S.C. §112, first paragraph.

Claims 1 and 4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully submit that the amendments made to claims 1 and 4 overcome this rejection. Accordingly, Applicants respectfully request that Examiner withdraw the rejection of claims 1 and 4 under 35 U.S.C. § 112, second paragraph.

Claim Rejections Under 35 U.S.C. § 102 and § 103

Claims 1, 4 and 5 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. and § 103(a) as obvious over USP 5,424,261 to Harris et al. ("Harris"). Claims 1, 4 and 5 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. and § 103(a) as obvious over USP 5,165,983 to Sugiura et al. ("Sugiura"). Claims 1, 4 and 5 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. and § 103(a) as obvious over Japanese document 08157265 ("JP '265"). Claims 1, 4 and 5 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. and § 103(a) as obvious over Japanese document 5-229873 ("JP '873"). Claims 1, 4 and 5 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. and § 103(a) as obvious over USP 4,920,640 and 5,017,434 to Enloe et al., each taken alone. Applicants respectfully traverse these rejections.

First, in the Response to Arguments section, the Examiner contends that it is not clear what the difference in structure is when heating to 850°C and whether or not the claims include limitations drawn to the differences. Applicants submit that the aluminum nitride ceramic base material has an increment in warp of not more than 2.0×10^{-2} $\mu\text{m/mm}$, as required by claim 1.

This is a characteristic of the aluminum nitride ceramic base material and, hence, an express structural limitation.

The Examiner also contends that the Applicants have not provided any evidence that the aluminum nitride materials formed by the prior art processes do not possess these properties. The Examiner further alleges that JP '265 and JP '873 use BN setters, thus are not comparative examples.

Applicants respectfully submit that neither JP '265 nor JP '873 discloses increment in warp after heat treatment. It is submitted that the claimed setters are BN plates and BN sheets that are porous, as described in the instant specification and as evidenced by Japanese Patent No. 2614874 and the Declaration under 37 C.F.R. § 1.132 submitted April 11, 2008 (*see, e.g.*, pg. 11, lines 9-11 and Examples 2 and 9-18 in Table 1 on pg. 18 of the originally filed specification; Exhibit A filed November 21, 2006; and Paragraph 3 and Examples 30-32 in Table 1a of the Declaration).

The Examiner alleges that page 20 of the specification does not set forth porous setters and the specification fails to define the degree of porosity required. Applicants disagree.

Applicants respectfully point out that Table 1 on page 18 of the specification shows the material and type of setter for Examples 1-29; Table 2 on page 20 of the specification shows that the warp reported after sintering and increment in the warp after heat treatment of the examples representative of the claimed subject matter are significantly superior to the warp after sintering and increment in the warp after heat treatment of the comparative examples; and Examples 1-29 found in Table 1 correspond to the examples in Table 2.

With respect to the degree of porosity, in the present application, the setter is described as a sheet-shaped formed body, such as, porous BN or a punched plate made of nitride ceramic

(see, e.g., pg. 11, lines 8-10 of the specification). The setter of Sample 9 is also described as a punched sintered plate of which the total volume of through holes is 30% of the total volume of the plate (see, e.g., pg. 17, lines 1-3 of the specification). As a result, it is clear from the specification that the language in question is fully supported by the original specification.

The Examiner asserts that the cited prior art uses setters in producing aluminum nitride material. The Examiner concludes that comparative examples that fail to use a setter cannot be considered to be representative of the cited prior art.

As discussed above, the cited prior art does not address increment in warp after heat treatment. The Declaration under 37 C.F.R. § 1.132 submitted on April 11, 2008 disclosed two Comparative Examples, Nos. 36 and 37, both of which used setters. As discussed in Paragraph 5 of the Declaration, the samples were heat-treated at 850°C for an hour in a non-oxidative atmosphere according to an embodiment of the claimed subject matter. The increment in the warp after heat treatment ($\mu\text{m}/\text{mm}$) for Comparative Example Nos. 36 and 37 was 6.3×10^{-2} and 6.5×10^{-2} , respectively.

In addition, it is noted that Samples 30 to 32 of the Declaration include a porous BN sheet corresponding to JP '265, JP '873, Enloe '434, and Enloe '640; Samples 33 to 35 include a porous carbon setter, Sample 36 includes a dense glassy carbon setter corresponding to Harris, and Sample 37 includes a dense BN setter corresponding to Sugiura.

Accordingly, as none of the cited references discloses or suggests the above discussed limitation of claims 1, 4 and 5 regarding an increment in warp after a heat treatment, none of the cited references anticipates the subject matter of claims 1, 4 and 5. Similarly, as none of the cited references discloses or suggest the above discussed limitation of claims 1, 4 and 5, any of the cited references or any combinations thereof do not render claims 1, 4 and 5 obvious. Thus,

Applicants respectfully request that the Examiner withdraw the rejections of claims 1, 4 and 5 under 35 U.S.C. § 102 and § 103.

Double Patenting Rejections

Claims 1, 4, and 5 are provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1, 4, and 5 of copending Serial No. 11/907,020. Applicants respectfully submit claims 1 and 4-6 of copending Serial No. 11/907,020, which were amended or added by the Amendment filed on May 14, 2008, are directed to a **method for forming an aluminum nitride ceramic base material**. As such, it is clear that these claims of copending Serial No. 11/907,020 are directed to different subject matter from the claims of the present application. Applicants respectfully request that the Examiner withdraw the rejections of claims 1, 4 and 5 under 35 U.S.C. § 101.

Conclusion

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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Synonyms: holey, leaky, penetrable, porous, pervious, absorptive, absorbent, spongy

Antonym: impermeable

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Print Preview **porous**[back to Dictionary Results View](#)

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po·rous [páwrəss]

adjective

Definition:

1. permeable: permitting the movement of fluids or gases through it by way of pores or other passages

2. breachable: easy to cross, infiltrate, or penetrate

3. with pores: having a surface that contains pores or a body that contains cavities

[14th century. Via French < medieval Latin *porosus* < Latin *porus* "passage, pore"]

- po·rous·ly *adverb*
- po·rous·ness *noun*

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